

**Amendment to the Claims**

**In the Claims:**

Please amend Claims 1, 2, and 8 as follows:

1. (Currently Amended) A method of constructing a blank library of optically distinct reporter labeled carriers, said method comprising the steps of:

(a) providing a plurality of carriers, at least some of which are identical, each carrier being configured to support a plurality of optically distinct reporters and a plurality of compounds of interest, none of the plurality of carriers as initially provided having any reporters or compounds of interest attached thereto;

(b) providing a plurality of reaction vessels, such that at least one reaction vessel is available for each unique member of the blank library to be constructed;

(c) providing a plurality of optically distinct reporters, such that at least some of the plurality of optically distinct reporters are different from each other;

(d) in each reaction vessel, apportioning at least one carrier, such that any reaction vessels vessel that includes more than one carrier will include only identical carriers;

(e) in each reaction vessel, apportioning at least one optically distinct reporter, such that a unique combination of the at least one carrier and the at least one optically distinct reporter is achieved in each reaction vessel, and such that the optically distinct reporters in each vessel enable each carrier in that vessel to be distinguished from carrier and reporter combinations in other vessels;  
and

(f) attaching said at least one optically distinct reporter to said at least one carrier in each reaction vessel, such that each carrier in the same reaction vessel will have an identical set of optically distinct reporters attached to it, each reaction vessel including a set of optically distinct reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of optically distinct reporter labeled carriers, such that compounds of interest can later be attached to the optically distinct reporter labeled carriers of the blank library.

2. (Currently Amended) The method of Claim 1, wherein at least one reaction vessel contains a carrier that is optically distinct from others of said plurality of carriers in other ~~reactions~~ reaction vessels, and wherein no reaction vessel contains a mixture of optically distinct carriers.

1 3. (Cancelled)

2 4. (Cancelled)

3 5. (Cancelled)

4 6. (Cancelled)

5 7. (Cancelled)

6 8. (Currently Amended) A method of constructing a blank library of optically distinct  
7 reporter labeled carriers, said method comprising the steps of:

8 (a) providing a plurality of optically distinct carriers, at least some of which are identical,  
9 each carrier being configured to support a plurality of optically distinct reporters and a plurality of  
10 compounds of interest, none of the plurality of carriers as initially provided having any reporters or  
11 compounds of interest attached thereto;

12 (b) providing a plurality of reaction vessels, such that at least one reaction vessel is  
13 available for each unique member of the library to be constructed;

14 (c) providing a plurality of optically distinct reporters, such that at least some of the  
15 plurality of optically distinct reporters are different from each other;

16 (d) in each reaction vessel, apportioning at least one optically distinct carrier and at least  
17 one optically distinct reporter, such that:

18 (i) any one of the plurality of reaction vessels that includes more than one  
19 optically distinct carrier will include only identical optically distinct carriers; and

20 (ii) a unique combination of the at least one optically distinct carrier and  
21 the at least one optically distinct reporter is achieved in each reaction vessel; and

22 (e) attaching said at least one reporter to said at least one carrier in each reaction vessel,  
23 such that each optically distinct carrier in the same reaction vessel will have an identical set of  
24 optically distinct reporters attached to it, each reaction vessel including a set of optically distinct  
25 reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers  
26 of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of  
27 optically distinct reporter labeled carriers, such that compounds of interest can later be attached to the  
28 optically distinct reporter labeled carriers of the blank library.

29 9. (Previously Presented) The method of Claim 8, wherein no reaction vessel contains a  
30 mixture of different optically distinct carriers.

1           10. (Previously Presented) The method of Claim 8, wherein said plurality of optically  
2 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on  
3 size.

4           11. (Previously Presented) The method of Claim 8, wherein said plurality of optically  
5 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on  
6 intensity.

7           12. (Previously Presented) The method of Claim 8, wherein said plurality of optically  
8 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on  
9 shape.

10           13. (Cancelled)

11           14. (Cancelled)

12           15. (Cancelled)

13           16. (Cancelled)

14           17. (Cancelled)

15           18. (Cancelled)

16           19. (Cancelled)

17           20. (Cancelled)

18           21. (Cancelled)

19           22. (Cancelled)

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21           24. (Cancelled)

22           25. (Cancelled)

23           26. (Cancelled)

24           27. (Cancelled)

25           28. (Cancelled)

26           29. (Cancelled)

27           30. (Cancelled)

28           31. (Cancelled)

29           32. (Cancelled)

30           33. (Cancelled)

1 34. (Cancelled)

2 35. (Cancelled)

3 36. (Cancelled)

4 37. (Cancelled)

5 38. (Cancelled)

6 39. (Cancelled)

7 40. (Cancelled)

8 41. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel  
9 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
10 vessels based on size.

11 42. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel  
12 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
13 vessels based on shape.

14 43. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel  
15 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
16 vessels based on color.

17 44. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel  
18 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
19 vessels based on an intensity of color.

20 45. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel  
21 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
22 vessels based on size.

23 46. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel  
24 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
25 vessels based on shape.

26 47. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel  
27 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
28 vessels based on color.

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1           48. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel  
2 includes optically distinct carriers that can be optically distinguished from carriers in other reaction  
3 vessels based on an intensity of color.

4           Please add new Claim 49-52 as follows:

5           --49. (New) A method of constructing a library of optically distinct reporter labeled carriers  
6 to which no compounds of interest are yet attached, the method comprising the steps of:

7           (a) providing a plurality of carriers, at least some of which are identical, each carrier  
8 being configured to support a plurality of optically distinct reporters and a plurality of compounds of  
9 interest, none of the plurality of carriers as initially provided having any reporters or compounds of  
10 interest attached thereto;

11           (b) providing a plurality of reaction vessels, such that at least one reaction vessel is  
12 available for each unique member of the library to be constructed;

13           (c) providing a plurality of optically distinct reporters, such that at least some of the  
14 plurality of optically distinct reporters are different from each other;

15           (d) in each reaction vessel, apportioning at least one carrier, such that any reaction vessels  
16 that includes more than one carrier will include only identical carriers;

17           (e) in each reaction vessel, apportioning at least one optically distinct reporter, such that a  
18 unique combination of the at least one carrier and the at least one optically distinct reporter is  
19 achieved in each reaction vessel, and such that the optically distinct reporters in each vessel enable  
20 each carrier in that vessel to be distinguished from carrier and reporter combinations in other vessels;  
21 and

22           (f) attaching the at least one optically distinct reporter to the at least one carrier in each  
23 reaction vessel, such that each carrier in the same reaction vessel will have an identical set of  
24 optically distinct reporters attached to it, each reaction vessel including a set of optically distinct  
25 reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers  
26 of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of  
27 optically distinct reporter labeled carriers, each member of the library consisting of a carrier to which  
28 at least one optically distinct reporter is attached.

29           50. (New) A method of constructing a blank library of optically distinct reporter labeled  
30 carriers, the method comprising the steps of:

1 (a) providing a plurality of optically distinct reporters, such that at least some of the  
2 plurality of optically distinct reporters are different from each other;

3 (b) based on the number of different optically distinct reporters provided, determining all  
4 possible binary codes that can be produced using the optically distinct reporters provided;

5 (c) providing a plurality of reaction vessels, such that each reaction vessel corresponds to  
6 a specific binary code;

7 (d) providing a plurality of carriers, at least some of which are identical, each carrier  
8 being configured to support a plurality of optically distinct reporters and a plurality of compounds of  
9 interest, none of the plurality of carriers as initially provided having any reporters or compounds of  
10 interest attached thereto;

11 (e) in each reaction vessel, apportioning the optically distinct reporters required to  
12 produce the binary code corresponding to the reaction vessel;

13 (f) in each reaction vessel, apportioning at least one carrier, such that any reaction vessel  
14 that includes more than one carrier will include only identical carriers; and

15 (g) in each reaction vessel, attaching the optically distinct reporters defining the binary  
16 code for the reaction vessel to each carrier in the reaction vessel, such that each carrier in the same  
17 reaction vessel will have an identical set of optically distinct reporters attached to it, each reaction  
18 vessel including a set of optically distinct reporter labeled carriers that is uniquely different from the  
19 optically distinct reporter labeled carriers of each other reaction vessel, the plurality of reaction  
20 vessels thereby defining a blank library of optically distinct reporter labeled carriers, such that  
21 compounds of interest can be later attached to the optically distinct reporter labeled carriers of the  
22 blank library.

23 51. (New) The method of Claim 50, wherein the step of apportioning the optically distinct  
24 reporters required to produce the binary code corresponding to the reaction vessel comprises the step  
25 of adding each different type of optically distinct reporter to the reaction vessel separately, such that  
26 if more than two different types of optically distinct reporters are required, each additional type of  
27 optically distinct reporter is not added to the reaction vessel until the previously added types of  
28 optically distinct reporters have combined to achieve a cluster.

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1           52. (New) The method of Claim 50, wherein the step of providing a plurality of optically  
2 distinct reporters comprises the step of providing optically distinct reporters whose sizes are smaller  
3 than a spatial resolution limit of an imaging system that will be used to analyze the library.--  
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